

Chapter 2 – Key Findings

OVERVIEW

This chapter summarizes key findings from the research conducted by the consultant team and staff and includes input from the public involvement process. The information is divided into [seven](#) sections:

- Transportation
- Land Use
- Economic Analysis
- Schools
- Parks
- [Other Community Facilities](#)
- Utilities

Expanded summaries of the research conducted in [these](#) categories can be found in supporting research documentation that is not part of this plan document. This documentation is available on the City's Web site and from the City's Community Planning and Development Services Department.

TRANSPORTATION

Transportation findings focus on the functionality of the Pike and the surrounding street network, traffic, safety, transit service, and bicyclist and pedestrian conditions.

1. Rockville Pike serves two major transportation functions: as a regional arterial through Montgomery County and an access road to commercial land uses. Parallel Interstate 270 is not a very good substitute for local movement because it only offers limited access in

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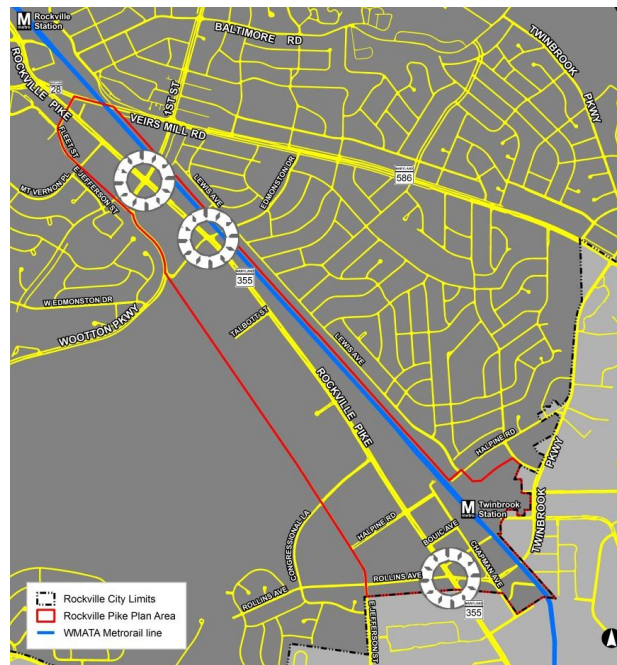
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Montgomery County. Motorists will continue to use the Pike for reaching many Rockville retail and employment destinations.

2. Rockville Pike functions primarily as an arterial roadway on weekday mornings. Although morning volume is high¹, many intersections experience relatively light overall delay because traffic signals are timed to favor the Pike and keep its traffic flowing. However, this approach comes at the expense of efficient cross-street vehicular, bicycle and pedestrian movements.
3. The Pike's overall performance is weakest on Saturdays and in the afternoon weekday hours when the demand for travel to retail establishments is highest.² Rockville Pike nears its vehicle-moving capacity at these peak times. While north-south volumes are not as high on Saturdays, the cross-traffic conflicts are increased due to shopping and that increases delays at intersections. The Pike's ability to handle through traffic is challenged when demands to move across it and from one part to another are increased, as occurs during most prime retail hours.

Figure 2.1: Street Connectivity Diagram – This diagrammatic representation of the street network surrounding the Pike shows: the barrier created by the Metrorail right-of-way (in blue); the rich pattern of connected residential streets outside of the Plan Area (in yellow); and the dramatic vacuum of connectivity along the Pike (limited east – west connectors are circled in white). Only three roads cross the tracks within the Plan Area.



4. In 2011, Rockville Pike carried an average of approximately 53,000 cars per day. Traffic volume and congestion are expected to continue to increase as growth continues along MD 355 and as nearby developments, including potentially more than 17 million

¹ In 2011, the Pike carried an average of 2,160 cars in the southbound direction during the morning peak hour.

² In 2011, the Pike carried an average of 2,401 cars in the northbound direction in the afternoon peak hour.

square feet of residential and commercial space in the White Flint area to the south, come on line over the next three decades.³

5. More than 40% of the crashes at the intersections shown in Table 2.1 are rear-end collisions, implying that the speed differential between the Pike's arterial function and commercial access function contributes significantly to collisions along Rockville Pike.

Table 2.1 - Crashes and Severity at Selected Corridor Intersections from 2009 to 2011

Intersection	Total Number of Crashes	Number Involving Personal Injury	Number Involving Pedestrians	Number Involving Rear-End Collisions
Wootton Parkway	16	13	1	7
Edmonston Drive	35	16	4	20
Templeton Drive	10	3	2	5
Halpine Road	21	11	2	6
Bou Avenue	17	12	3	4

Source: Maryland State Highway Administration Accident Data

6. Neighborhoods in and around the Plan Area have few connections to the Pike. On the east side of the road, access is limited due to the Metrorail right-of-way. Woodmont Country Club and Wootton Parkway impede access from the west side. As a result, congestion and delays consistently occur at the three east-west connections: Wootton Parkway and First Street; Edmonston Drive; and Rollins Avenue and Twinbrook Parkway.
7. The Critical Lane Volume (CLV)⁴ analysis conducted in the fall of 2010 revealed that the combination of the City's traffic standards and the existing and projected traffic (based on approved development projects) will not readily allow development consistent with the recommendations of this plan. This continues to be the situation in 2013. Five of the key intersections in the corridor are already highly congested at certain peak times

³ Although the White Flint Sector Plan includes the potential for up to 17.6 million square feet of new residential and commercial space through 2040, including up to 9,800 dwelling units, this amount of development is unlikely to occur because actual build-out is rarely equivalent to zoning capacity.

⁴ CLV analysis is a method of calculating intersection capacity to estimate an order-of-magnitude level of development that could be permitted under the City's existing Comprehensive Transportation Review system of concurrency management.

Deleted: The difference in vehicle speeds resulting from serving both access and mobility functions makes the Pike prone to accidents. (See Table 2.1.)

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using the City's current approach, thereby effectively preventing development that will add traffic to the corridor (using the City's current APFO standard).

8. The Metrorail Red Line provides high-capacity rapid transit service for the Rockville Pike corridor at the Rockville and Twinbrook stations and connects it to other parts of the Washington region. It is a vitally important asset for the City's economy, regional access and for advancing the shift toward non-automobile modes of transportation, which is critical to implementing this plan.

Historically, surrounding low density development and poor walking conditions have impeded pedestrian access to the Twinbrook station. Low density is an impediment because it limits the number of people who are within walking distance of the station. Recently approved redevelopment projects near the Twinbrook Station have increased density and include a mix of uses, so this condition is beginning to change.

9. Montgomery County's Ride On transit provides the majority of bus service in the corridor. Route 46 provides local service up and down the Pike. Other Ride On bus routes provide coverage to most of the Pike Plan Area, but service is compromised by a lack of a connected street network; buses cannot rely on parallel streets for routing and circulation.
10. Pedestrian conditions are poor throughout the Plan Area.
 - Sidewalks are narrow and often squeezed between parking lots and fast-moving traffic on the Pike.
 - Long distances between signalized intersections limit opportunities for pedestrians to cross the Pike safely in much of the plan area.
 - Signal timing at intersections is not always sufficient for safely crossing the Pike.
 - Pedestrians share crossing times with vehicles, which increases the risk of accidents as turning vehicles cross the pedestrian's path.
 - Pedestrians are at risk crossing shopping center driveways and cross streets where drivers are turning off of, or onto, the Pike.
 - Strip shopping centers are designed for automobiles and are not pedestrian-friendly.
 - There are numerous physical barriers to accessing Metro on foot or bicycle.
11. Bicycling along Rockville Pike is uninviting, and perceived to be unsafe due to the road's design, speed, and heavy traffic volume.
 - The lack of a protected bicycle route along the Pike is a missing link between the County's Bethesda Trolley Trail and the Carl Henn Memorial Millenium Trail along Wootton Parkway.
 - Development regulations historically have been geared toward cars and have not been designed to accommodate cyclists in the corridor, though recent changes have been more accommodating.

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- Bicycle parking is limited, even at the Metrorail station. The lack of bicycle parking is an added deterrent to those wishing to substitute bicycling in place of driving to destinations along the Pike.

LAND USE

Land use findings focus on types of activities (retail, residential, office, etc.), ownership patterns, physical character and appearance, amenities, spatial qualities, and prevailing densities.

1. Retail makes up more than half of the total developed land within the corridor.
2. Transportation rights-of-way, including roads and railways, make up one-fifth of the total land area.
3. Impervious surfaces cover 60 percent of the Plan Area. Pavement covers nearly 71 percent of the impervious surface area, or approximately 43 percent of the total study area. Very little of the impervious surface area is designed for pedestrians or bicyclists.
4. The predominant land use pattern along the corridor is in the form of individual parcels with single-story buildings occupied by a solitary use, set far back from the street and surrounded by surface parking lots. This pattern uses a vast amount of land, forces multiple vehicle trips between properties, and contributes to the large total number of car trips in the corridor.
5. There are no public open spaces or parks in the Plan Area. Woodmont Country Club represents approximately 9% of the land area, but it is private.⁵
6. The corridor includes extremely long blocks. Most notably, nearly 7,000 feet separate the Pike's intersection with Edmonston Drive and the next intersection to the south at Halpine Road. Although there are signalized locations that allow pedestrians to cross the Pike within this area, there are no cross streets. The lack of cross streets in this portion of the Pike, in particular, creates a barrier between the east and west sides.
7. Much of the Rockville Pike corridor has the undistinguished look of generic and aging suburban strip development. This condition stems from a lack of building frontage continuity, functional pedestrian environment, and visual interest - all ingredients of great places.
8. One- and two-story developments and low density do not take advantage of the proximity to the Twinbrook Metro Station. Low density means that fewer people are within walking distance of the Twinbrook Metro Station, hindering the ability of Metro to become a viable alternative to the private automobile. Some people choose to drive

⁵ The entire Woodmont Country Club property is more than 400 acres, which is approximately the same total as the Plan Area. The 9% refers to the 38 acres that are located within the Plan Area.

because getting to Metro is inconvenient; others drive and park at the station, which does not help to reduce the number of vehicle trips.

ECONOMIC ANALYSIS

A. Demographic and Economic Profile

1. The 2010 population in the Plan Area was estimated at 2,620. Population is projected to more than quadruple to approximately 11,460 by 2040.⁶
2. There were an estimated 1,270 households in the Plan Area in 2010. This number is projected to increase to about 5,470 in 2040.⁷
3. The number of people employed in the Plan Area in 2010 was estimated at 9,880. At-place employment is projected to grow by about 35%, to approximately 13,330 in 2040.⁸
4. Rockville Pike is a well-established and economically viable commercial corridor in the Washington, D.C. metropolitan area and a major source of revenue for the City of Rockville and Montgomery County.
5. Historically strong household and job growth and a relatively vibrant economic environment suggest positive long-term development potential, in spite of the recent recession.
6. Rockville's median household income in 2007-2011 was estimated at \$92,288 and Montgomery County's median household income was estimated at \$95,660 during the same period, compared to \$52,762 in the U.S.⁹ High household incomes in the region contribute to the economic vitality of retail.
7. Services and retail trade account for almost three-quarters of employment in the area surrounding Rockville Pike.

B. Real Estate Trends

This section reviews retail, office, and residential trends in the study area. Analysis included review of existing patterns of real estate development, including rents, occupancy, and absorption trends of various land uses. The key findings of these analyses include:

1. The retail market is the primary driver in the corridor. The corridor serves as a regional destination retail center and one of the best performing agglomerations of retail in the region.

⁶ City of Rockville, Community Planning and Development Services Department, Round 8.2 forecasts

⁷ Ibid.

⁸ Ibid.

⁹ U.S. Department of Commerce, Census Bureau, American Community Survey, 2007-2011

2. The South Pike is comprised of predominantly national retail tenants that tend to pay higher rents and have larger footprints.
3. The Middle and North Pike areas have a greater proportion of locally owned businesses with smaller store sizes and lower average rents.
4. Multifamily residential is emerging as a use along the Pike with the market developing at a quicker pace south of the City near the White Flint Metro Station.
5. Recently approved and constructed development projects near the Twinbrook Metro station have included mixed uses, higher densities, and multi-story buildings such as Congressional Village, Twinbrook Station, and Twinbrook Metro Place. More than 1,800 multifamily dwelling units were approved in the immediate vicinity of the Metro Station between 2011 and 2012.
6. Commercial office is a relatively small component of the overall Rockville Pike development pattern, with a few free-standing office buildings in the corridor.

C. Market Demand

This section examines the market demand for residential, office, and retail in the study area. To determine future land use patterns, the economic consultants examined growth trends and assessed future demand potential.

1. Residential demand is projected to grow, though competition will exist with White Flint and Rockville Town Center.
2. Recent development near the Twinbrook Metro station is providing an important market test for development potential along Rockville Pike and will further adapt the market to a higher density product type
3. Near future absorption of rental units is projected to be about double the absorption rate of for-sale residential units.
4. Office demand will likely serve as a secondary component to developments, except in situations closely connected to the Metro, such as Twinbrook Station. The I-270 corridor will continue to be the primary Class A office draw, with more limited office potential along the Pike.
5. The retail market will continue to provide the economic base; however, additional demand will come in small increments and is anticipated to remain relatively constant in terms of total square feet.
6. As incomes rise and as place-making happens in the corridor, store productivity and rental rates will likely increase. However, the corridor has and will continue to have

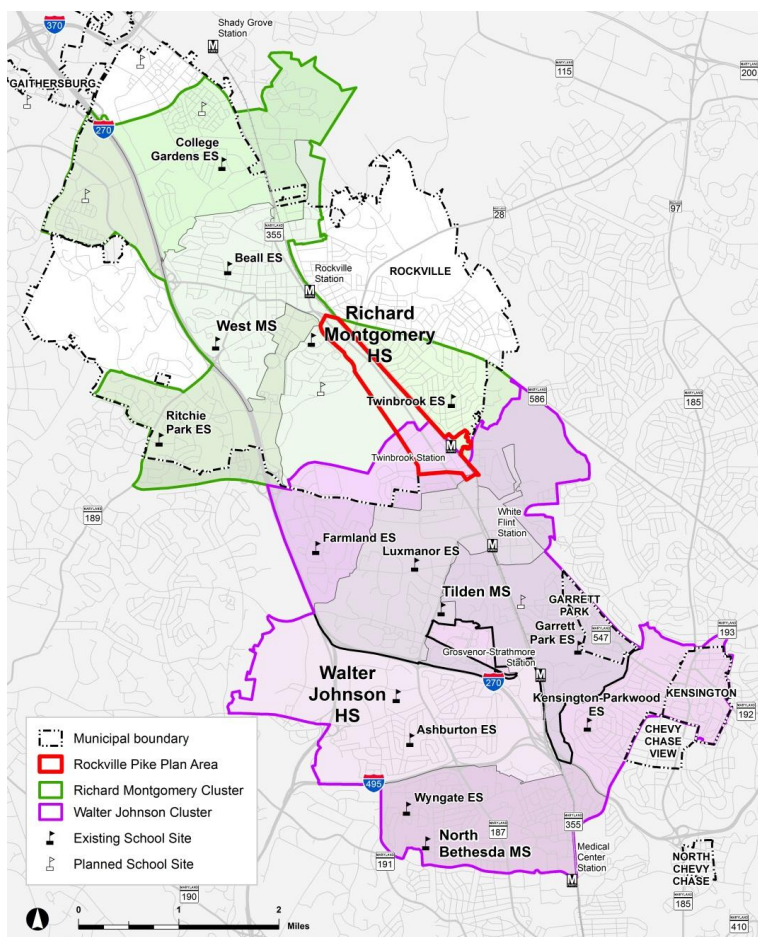
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different physical and economic characteristics and it is expected that some portions will continue to provide retail space that attracts small or local businesses at lower rents.

7. Local retail trends will be affected by more global trends, including demographic changes and the impacts of on-line and mobile shopping.

SCHOOLS

The Plan Area includes schools in the Richard Montgomery and Walter Johnson clusters. Five public elementary schools, two middle schools, and two high schools serve the Plan Area (see Table 2.2). The majority of the Plan Area is within the Richard Montgomery cluster.



The City's Adequate Public Facilities Ordinance (APFO) establishes that no child-generating development can take place if the new residences will be within the boundaries of a school that has enrollment of 110% or more of the school's program capacity. Montgomery County Public Schools (MCPS) data show that **three out of the four** elementary schools within the Richard Montgomery High School cluster that serves the northern two-thirds of the Plan Area either exceed 110% or are projected to exceed 110% within the next six years. Enrollment at these elementary schools has increased dramatically in recent years. **Twinbrook Elementary School is projected to reach the 110% threshold between 2017 and 2019, but drop slightly by the 2019-2020 school year.**

A feasibility study was conducted during the 2010-2011 school year for a new elementary school (currently known as "Elementary School #5") at the site of the former Hungerford Park Elementary School due to the magnitude of recent enrollment growth. This new elementary school is programmed for completion in August 2017 with a projected program capacity of **602** students.¹⁰ The new school will help to alleviate overcrowding for existing residents and may make family-oriented residential development possible in this cluster.

In a few years, the wave of elementary students will reach the middle school level. Julius West Middle School is **below** the 110% threshold in 2013-2014 and is expected to dip to 93% of capacity during the 2019-2020 projection period, **only** because the Montgomery County Council approved funding for an addition with a scheduled completion date of August 2016.

Richard Montgomery High School is projected to increase its enrollment relative to capacity over the next six years, but it is not projected to exceed 110% during that time frame.

Table 2.2 – School Existing and Projected Enrollment/Capacity
Schools with service areas within the Plan Area

Richard Montgomery School Cluster	2013-2014 Enrollment	2013-2014 Enrollment/Capacity	2019-2020 Projected Enrollment/Capacity
Beall ES	785	123%	124%
College Gardens ES	853	123%	119%
Ritchie Park ES	541	140%	138%
Twinbrook ES	559	100%	109%
Julius West MS	1,131	107%	93%
Richard Montgomery HS	2,176	97%	108%
Walter Johnson School Cluster			
Farmland ES	655	90%	92%
Tilden MS	781	80%	96%
Walter Johnson HS	2,245	96%	105%

Source: Montgomery County Public Schools, Division of Long-Range Planning, October 2013

¹⁰ Programmed means that the project has expenditures programmed in a future year of the Capital Improvements Program (CIP) for planning and/or construction funds.

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Schools in the Walter Johnson cluster that serve the Plan Area are not currently over capacity and are not projected to rise above the 110% threshold through the 2019-2020 school year, based on MCPS projections that are available at this time. Walter Johnson High School is projected to increase to 105% of capacity by the 2019-2020 school year.

PARKS

As of 2009, public parks, recreation and open space in the City totaled 1,199 acres.¹¹ The Department of Recreation and Parks owns or maintains 69 parks, recreation, and open space sites totaling approximately 1,035 acres. This includes 14 citywide parks and facilities, 40 neighborhood parks and facilities, four athletic parks, and 11 open space parks. An additional 164 acres are at public school sites and Montgomery College. None of the parks or open space sites is located within the Plan Area.

Parks and green spaces are needed in the Plan Area now and this need will grow as development continues and the population in the Plan Area increases. The City's Parks, Recreation and Open Space Plan (2009) recommends obtaining funding for parkland acquisition in certain parts of the City, including the Rockville Pike corridor. Park needs are discussed in Chapter 4.

OTHER COMMUNITY FACILITIES

Projected growth places demands on other community facilities, as well. The City's Municipal Growth Element (MGE), adopted into the Comprehensive Master Plan in 2010, anticipated the general level of growth that is projected for this plan and provided assessments regarding the needs for additional facilities. They are discussed below.

Public Libraries

For the foreseeable future, Rockville far exceeds the American Library Association standards for library space (pp. 42-43 of the MGE), based on the City's expected population. Rockville, including the Pike corridor, is well-served by the two branches of Montgomery County Public Libraries within the City limits, and other branches nearby. However, changing use for these facilities should be monitored with the advent of new media.

Police

The new headquarters for the Rockville Police Department, opened in 2012, is expected to provide sufficient space to serve the City's population growth through 2040. If the proportion of police officers to population remains the same, there will be a citywide need of 19 new officers (pp. 43-45 of MGE), approximately 8 of whom would be generated by the growth in the Rockville Pike corridor. Changing factors in crime and policing may change this proportion. In addition, the City collaborates extensively with Montgomery County, which also plays a role in Rockville, and, together, they will respond to changing factors.

Fire and Emergency Response

¹¹ Rockville Parks, Recreation and Open Space (PROS) Plan, 2009

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The Montgomery County Fire and Rescue Services (MCFRS) provides fire, rescue and emergency medical services to the City of Rockville (pp. 45-48 of MGE). One of the two fire stations in Rockville is in the Plan Area, on Rollins Avenue (Station 23). It is in need of expansion and renovation, and MCFRS has indicated a desire to relocate this station further south, within the White Flint Sector. Such a move would provide greater capacity for service but the station would no longer be located in Rockville. The corridor is also served by the fire station at the intersection of Hungerford Drive and Beall Avenue (Station 3). This station is also in need of renovation, or of a new station. Rockville must stay engaged with MCFRS plans to ensure that there is sufficient service to the Rockville Pike corridor, and to the City as a whole. Fire and rescue deployment, with respect to protecting the Plan Area, will need to meet the City's adequate public facilities requirements.

UTILITIES

Rockville-maintained utilities include water, wastewater and storm water systems in the Rockville Pike Plan Area. Additionally, WSSC maintains a portion of the water and sewer system for this area. Other critical utility infrastructure includes PEPCO's electric system, Washington Gas's gas system, Verizon's phone system, Comcast's cable television system, as well as numerous other communication system providers.

Rockville's Water Resources Element (WRE) of the Comprehensive Master Plan, which was adopted in 2010, documents that adequate water and wastewater capacity exists to accommodate projected growth through 2040; identifies infrastructure concerns that may restrict projected growth; and protects and preserves Rockville's watersheds. Redevelopment in the Plan Area, which was envisioned in the WRE, presents some challenges due to age and capacity of the existing water and wastewater infrastructure in this area. However, infrastructure upgrades for the water and wastewater systems are being implemented through Rockville's Capital Improvement Program (CIP) and through development-funded projects.

Water System

Sufficient treatment capacity exists at Rockville's Water Treatment Plant through 2040, the last year for which projections have been made. However, the water distribution system in the Plan Area requires upgrades to restore fire flow protection and to ensure the delivery of drinking water that meets or exceeds Environmental Protection Agency (EPA) and Maryland Department of the Environment (MDE) water quality standards. Much of the local deficiencies in the Plan Area have been recently corrected. Other upgrades are scheduled in Rockville's 2013 CIP or included in current developers' infrastructure requirements. Future developers of sites may face similar requirements to upgrade specific segments of the water distribution system to ensure that adequate capacity exists for their projects.

Wastewater System

All of the wastewater generated in the Plan Area is treated at the Blue Plains Advanced Wastewater Treatment Facility (Blue Plains), which is owned and operated by DC Water. Rockville owns sufficient treatment capacity at Blue Plains through 2040. However, the

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wastewater collection system in the Plan Area requires upgrades to rehabilitate failing sewer pipes (for instance, sealing cracked pipes) and to ensure sufficient flow capacity to transport the wastewater. All wastewater collected in Rockville's system is transported through the Washington Suburban Sanitary Commission (WSSC) and DC Water wastewater systems for treatment at Blue Plains. Many of the local deficiencies in the Plan Area have been recently corrected. Other upgrades are scheduled in Rockville's 2013 CIP or included in current developers' infrastructure requirements. Future development projects may be required to upgrade specific segments of the wastewater collection system to ensure that adequate capacity exists.

Washington Suburban Sanitary Commission (WSSC) Water and Wastewater

The WSSC directly provides water and wastewater service to a small portion of the Plan Area. This area is the southeastern portion, east of the railroad tracks, in the vicinity of the Twinbrook Metro Station. Development in this area is regulated by the WSSC.

Stormwater System

The Plan Area is divided nearly equally between the Cabin John and Rock Creek Watersheds. The northern and the southeastern portions, in the vicinity of the Twinbrook Metro Station, are in the Rock Creek Watershed; the remainder is in the Cabin John Watershed. Although there are no public stormwater improvements planned within the Plan Area, public downstream storm drain capacity upgrade and stream restoration projects are identified. Additionally, retrofit opportunities on private property within this Plan Area have been identified in the 2011 Cabin John Watershed Assessment and the 2013 Rock Creek Watershed Assessment.

Rockville's Stormwater (SWM) Law and Regulations will be applied to all development, including the Rockville Pike Planning Area. Accordingly, Environmental Site Design (ESD) techniques must be integrated into all development to the maximum extent practicable. Additionally, flood control (for the ten-year storm) must be provided either by structural, on-site facilities, or through participation in Rockville's Regional SWM program, which is typically accomplished by a monetary contribution.